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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,693	12/14/2001	Karla M. Robotti	10981377-4	3398

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

GORDON, BRIAN R

ART UNIT	PAPER NUMBER
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1743

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/020,693	Applicant(s) ROBOTTI ET AL.	
	Examiner Brian R. Gordon	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10-18-06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-43, 46, 47 and 49-77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-43, 46-47, 49-50, 52-69, and 71-74, 77 is/are rejected.
- 7) ☒ Claim(s) 51, 70, 75 and 76 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's arguments filed October 18, 2006 have been fully considered but they are not persuasive. Applicant asserts Takauchi et al. does not teach "a micro-fluidic device" as defined in paragraph 24, page 4. The examiner respectfully disagrees. The membrane of the battery is disclosed as comprising fine, micropores. The micropores define fluid paths. The micropores are disclosed as having diameters in the range of .05-10 μm (column 10, claim 6). As such the pores manipulate micro-volumes as required. As such the membrane and battery itself meets the standard of the definition provided by applicant.

For reasons given herein the previous rejections are hereby maintained.

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 37-43, 46-47, 49-50, 52-53, 56-58, 61-69, 71-72, 74 are rejected under 35 U.S.C. 102(b) as being anticipated by Takauchi et al. US 5,453,333.

Takauchi et al. discloses a porous membrane of a single layer structure formed from a first polymer having a melting point of at least 130 degree C and a second polymer having a melting point of up to 120 degree C, wherein the walls of the pores of the membrane have an amount of second polymer insufficient to block the permeability of the pores under normal operating temperature conditions yet sufficient to do so when

the membrane reaches a temperature equal to or greater than the second polymer's melting point.

The second polymer is considered to be equivalent to applicants phase reversible material stably associated and retained on a high surface area within the pores of the membrane. The membrane functions as a valve in the configuration of Figure 3 functioning to control the flow via heat actuation and mixing of the fluids separated in the compartment by the membrane.

As to claim 74, the membrane is exemplified at being 15 to 200 μm . However it would have been obvious on of ordinary skill in the art to recognize the membrane may be manufactured to a smaller size.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 54-55, 59-60, 73, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takauchi et al as applied to claims 37-43, 46-47, 49-50, 52-53, 56-58, 61-69, 71-72, and 74 above, and further in view of Hooper et al. US 5,569,364.

Takauchi does not disclose the second polymer as being N-isopropylacrylamide.

As admitted by applicant, smart gels are conventional and well-known in the art. Futhermore, Hooper et al. discloses gel particles can be prepared by inverse suspension, precipitation and suspension polymerization. These particles can be swollen and collapsed by small changes in temperature, pH, and ionic strength of solvent. Other approaches involve the formation of reversible cross-links by use of

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polyelectrolyte complexes, chelating agents or copolymers of hydrophobic and hydrophilic repeat units. Finally, reversibly solubilized systems may be used to change the viscosity of the media. Hooper provides a list of improved microgels including poly(N-isopropylacrylamide) which may be employed for separation.

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the improved microgels as taught by Hooper et al. as the second polymer within the device of Takauchi in order to ensure the proper separation of the fluids is maintained within the compartment.

As to claim 73, the patent does not mention the polymer being covalently bonded. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to recognize the polymer material would be covalently bonded to the membrane.

As to claim 77 the patent discloses the cross section of the porous membranes of the present invention has a single layer structure. The membrane has a body extending a length and breadth dimension desired to provide the needs of its end use. Hence it would have been obvious to recognize the membrane may be manufactured to fit a cross section as specified.

Allowable Subject Matter

5. Claim 51, 70, and 75-76 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach nor fairly suggest the high surface area component comprises an array of posts bonded to said at least one surface of said flow path or mechanical element.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


brg

BRIAN R. GORDON
PRIMARY EXAMINER